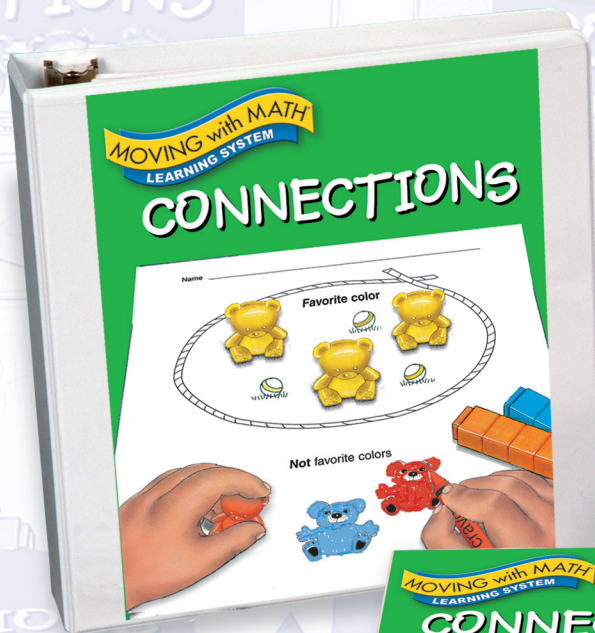


# CONNECTIONS

A literacy-based math program in English and Spanish



## Key Components

- Universal Screening
- Manipulative Based
- Progress Monitoring
- Explicit Instruction
- Language Acquisition
- Home Connections



## A Standards-Based Curriculum

### *Moving with Math*<sup>®</sup> Connections Pre-Kindergarten

*Moving with Math*<sup>®</sup> **Connections Pre-Kindergarten** is a standards-based curriculum designed to prepare pre-schoolers for success in kindergarten. To accomplish this goal, *Moving with Math*<sup>®</sup> **Connections Pre-Kindergarten** emphasizes the discovery and understanding of essential **math concepts** and the acquisition of appropriate **math literacy** needed by young learners to succeed in their math education.

The program is designed around two principal features:

- ▲ **an activity-based, language-rich** instructional model
- ▲ **a standards-based** learning and assessment system aligned to state and national standards



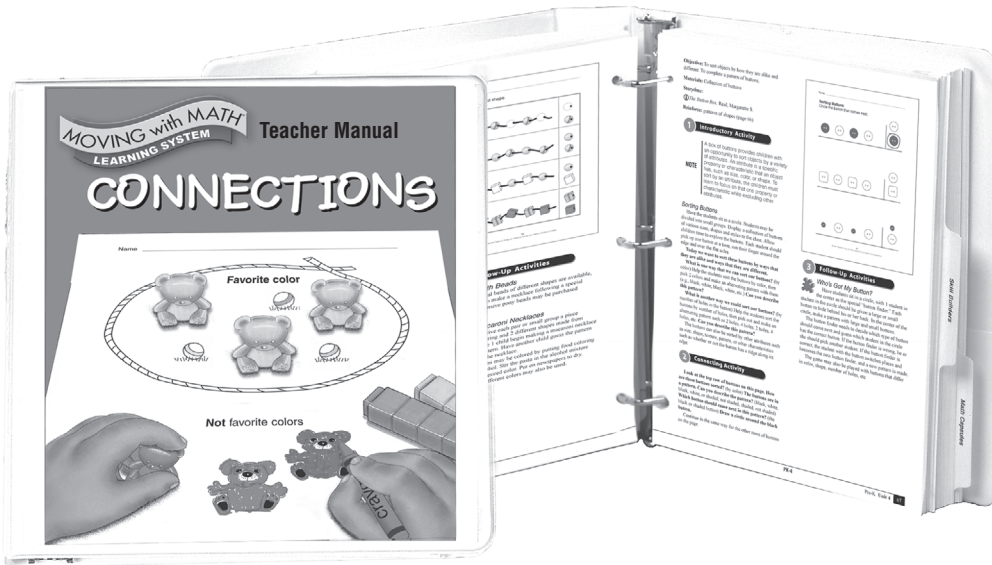
### *Moving with Math*<sup>®</sup> Connections Pre-Kindergarten

#### **A developmentally appropriate, carefully scaffolded, and rigorous curriculum**

- ✓ **Number:** Developing an understanding of number, including classifying and sorting, counting, and comparing
- ✓ **Geometry:** Identifying shapes and describing spatial relationships
- ✓ **Measurement:** Identifying measurable attributes and using them to compare objects
- ✓ **Adding and Taking Away:** Developing an understanding of such concepts as “one more” and “one less,” and using that understanding to solve practical problems related to putting sets together and taking sets apart

# Curriculum Materials

Everything a Teacher Needs for Success!



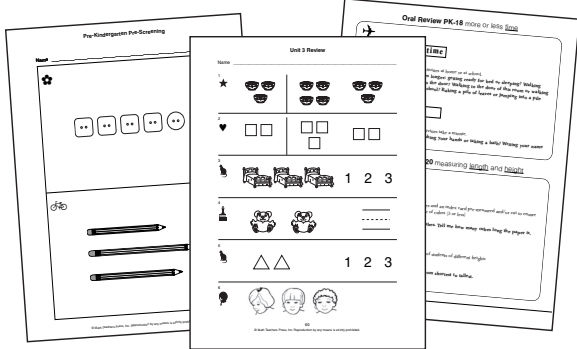
## Teaching Tools

### Unit Planners

- ▶ pacing calendars
- ▶ overview
- ▶ vocabulary
- ▶ materials
- ▶ annotated bibliography—  
130 children's stories

### Daily Teacher Support

- ▶ structured 1-2-3 lesson plans
- ▶ scaffolded lesson sequencing
- ▶ lightly-scripted lessons
- ▶ children's story activities
- ▶ learning center activities



## Assessment Tools

### Universal Screening

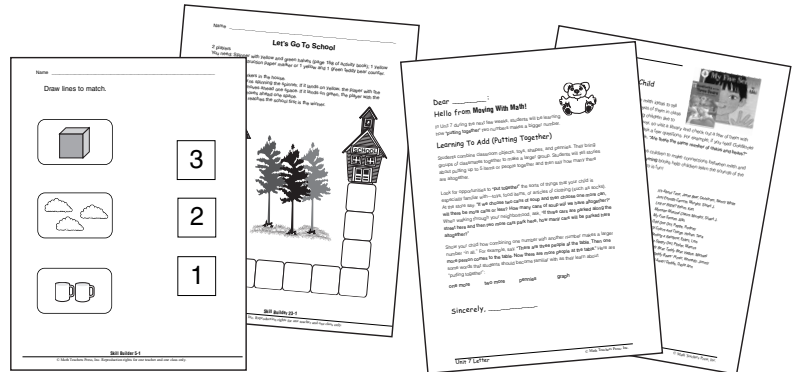
- ▶ one-on-one manipulative based screening
- ▶ paper-and-pencil screening for groups
- ▶ reproducible blackline masters
- ▶ screening also available in Spanish

### Record Sheets

- ▶ reports by class and individual student
- ▶ all questions matched to objectives

### Progress Monitoring

- ▶ daily oral reviews
- ▶ observational assessments
- ▶ unit reviews and post-unit assessments



## Reinforcement Tools

### Differentiation and Skill Building

- ▶ storyboards to model stories
- ▶ targeted skill-building practice
- ▶ games to play with manipulatives
- ▶ learning center activities
- ▶ Skill Builders also available in Spanish

### Family Math

- ▶ family math letters for each unit
- ▶ suggested children's books
- ▶ activities for home
- ▶ family math also available in Spanish

# Universal Screening

Standards-based screening assesses the mathematical proficiency of individual students and of the class as a whole.

The pre-screening is a 30-question **manipulative based** assessment designed to be administered on a **one-on-one** basis to individual students. The teacher or teacher aid guides the testing, observes the student's response to each question, and records the student's performance on the Individual Student Record Sheet. A paper-and-pencil version of the test for whole group screening is also included in the Teacher Manual.

## Pre-Kindergarten Manipulative-Based Screening Instructions

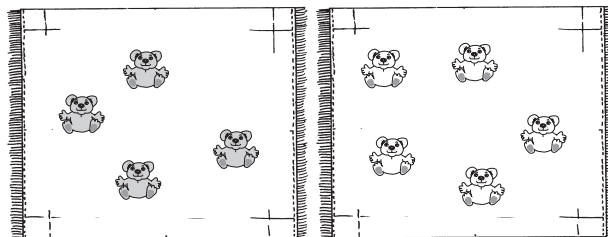
### LEARNING STANDARD



**PK-3** identify more and fewer

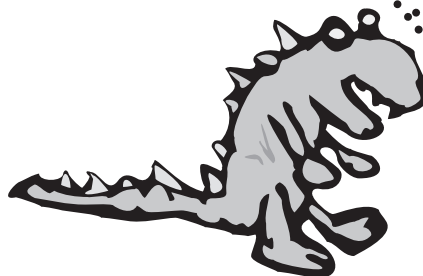
Display 4 red teddy bears on one storyboard blanket card (**Card 1**) and 5 blue teddy bears on another copy of the storyboard blanket card (**Card 1**) in front of the student.

Say: **Which blanket has more bears? Point to the blanket that has more bears.**



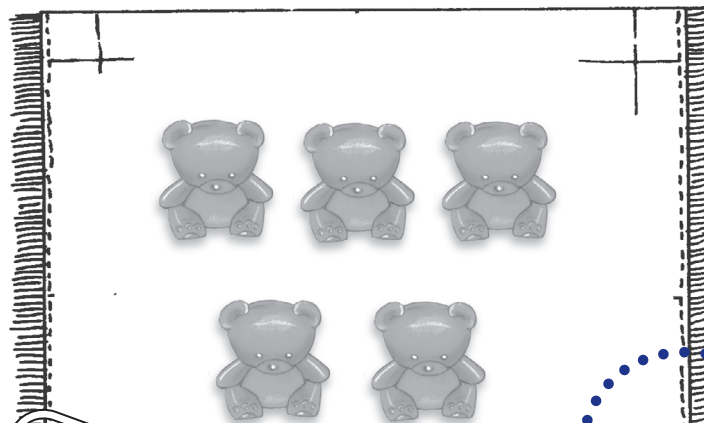
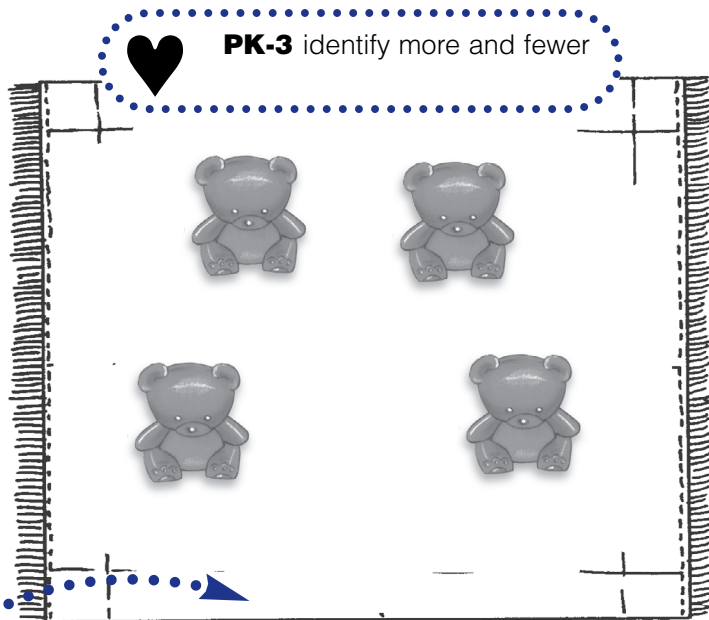
Teacher displays storyboards with 4 and 5 bears, respectively.

*Which blanket has more bears? Point to the blanket with more bears.*



# C onnects to instruction

Best practice studies indicate that standards-based screening is a reliable tool for guiding differentiated instruction.



Student points to the correct answer.

*This blanket has more bears.*



Class Record Sheet

School \_\_\_\_\_

Student Name		✍	★	♥
		1	2	3
Andersson, Fran	Pre-			
	Post-			
Bates, Jessie				
Cooke, Cato				
Esher, Jake				
Jones, Cyril				
Kim, Mike				

Teacher observes student's answer and records results.

Student Record Sheet

**Pre-K Student Progress Report**

Student Bates, Jessie

---

<table border="0"> <tr> <td style="font-size: small;">Pre-Test</td> <td style="border: 1px solid black; width: 15px; height: 15px;"></td> <td style="border: 1px solid black; width: 15px; height: 15px;"></td> <td style="border: 1px solid black; width: 15px; height: 15px;"></td> <td style="border: 1px solid black; width: 15px; height: 15px;"></td> <td style="border: 1px solid black; width: 15px; height: 15px;"></td> <td style="border: 1px solid black; width: 15px; height: 15px;"></td> <td style="border: 1px solid black; width: 15px; height: 15px;"></td> </tr> <tr> <td style="font-size: small;">Post-Test</td> <td style="border: 1px solid black; width: 15px; height: 15px;"></td> <td style="border: 1px solid black; width: 15px; height: 15px;"></td> <td style="border: 1px solid black; width: 15px; height: 15px;"></td> <td style="border: 1px solid black; width: 15px; height: 15px;"></td> <td style="border: 1px solid black; width: 15px; height: 15px;"></td> <td style="border: 1px solid black; width: 15px; height: 15px;"></td> <td style="border: 1px solid black; width: 15px; height: 15px;"></td> </tr> </table>	Pre-Test								Post-Test								<p><input checked="" type="checkbox"/> <input type="checkbox"/> <b>PK-1</b> ✍ Identify and sort by color.</p> <p><input checked="" type="checkbox"/> <input type="checkbox"/> <b>PK-2</b> ★ Compare two sets of objects to determine if they have the same number.</p> <p><input checked="" type="checkbox"/> <input type="checkbox"/> <b>PK-3</b> ♥ Identify which of two sets has more or less objects. Determine which of two sets of objects has many objects or just one object.</p> <p><input type="checkbox"/> <input type="checkbox"/> <b>PK-4</b> ○ Identify and extend a pattern using color, people, objects, pictures and numbers.</p> <p><input type="checkbox"/> <input type="checkbox"/> <b>PK-5</b> 🐛 Count the number in a collection of up to ten objects through active participation. Match sets of 0 to 12 objects with the written numbers.</p>
Pre-Test																	
Post-Test																	

# Children's Stories

*Let's count the ducks— "one duck, two ducks, three ducks ..."*



**Kids  
love  
the  
stories!**

**Children's stories engage students in problem solving and demonstrate real-world applications of math.**

Children's stories provide students with original problems to be solved, ways to practice mental math, and opportunities to develop problem-solving skills. In most children's stories, engaging illustrations help frame the problem and excite a child's interest in finding a solution. More than 130 story-based activities are described in the **Connections StoryTime** bibliography to ⓘ introduce or ⓔ extend the lesson.

**Three Ducks Went Wandering**

Sample StoryTime Activity

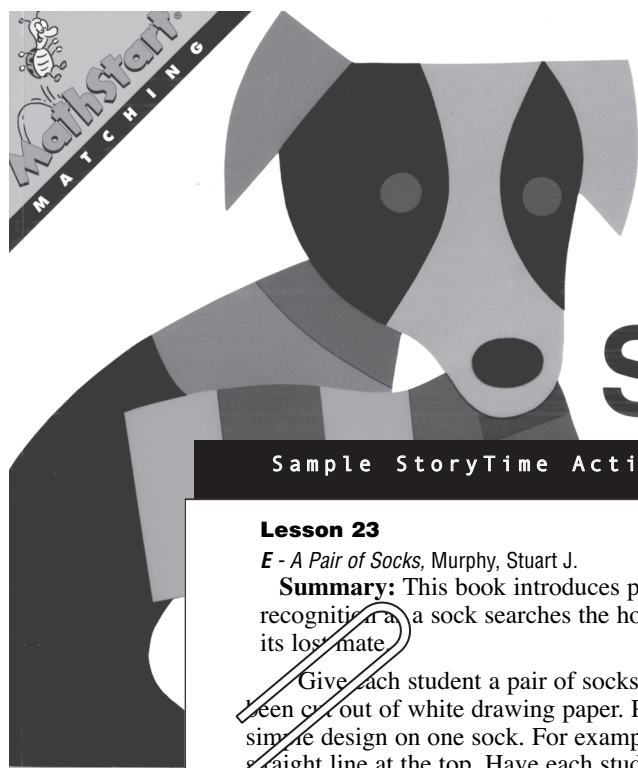
**E - Three Ducks Went Wandering, Roy, Ron**

**Summary:** Three little ducks wander away from their mother and fall into dangerous situations from which they manage to escape.

**Activity:** Read the story, then give each student 3 yellow interlocking cubes. Tell them that as you read the story again, you want them to act it out by pretending that the three cubes are the three little ducklings. As you read the story again, stop and count the ducks any time you say, "three little ducks." Ex. "One fine day, three little ducks wandered away from their mother's nest." Also say, **Let's count them: one, two, three.** Have the student touch and move their ducks as they count. Also reinforce positional words by having the students move their ducks as you say, "one, two, three" in the story.

Explicit instruction in math vocabulary is enhanced by discussing the “math” presented in children’s stories.

Children’s stories add excitement and give students an opportunity to use informal and formal language when talking about math. Many common words have very precise meanings when used in the domain of mathematics. Children’s stories about counting, adding one more, pairing, and other mathematical operations help students understand the “math meaning” of everyday words.



## A Pair of Socks

Murphy, Stuart J.

### Sample StoryTime Activity

#### Lesson 23

*E - A Pair of Socks*, Murphy, Stuart J.

**Summary:** This book introduces pattern recognition as a sock searches the house for its lost mate.

Give each student a pair of socks that have been cut out of white drawing paper. Put a simple design on one sock. For example, a straight line at the top. Have each student copy the design onto the other sock so that the pair of socks matches. After you have checked to make sure that each student has a matching pair of socks, take one sock from each student and place it on a bulletin board titled, “A Pair of Socks.” Take the other sock from each student and place it in an envelope or box. Each student will come to the box, pick a sock, and then find its matching partner on the bulletin board. This makes a great learning center activity for matching.



# Learning Centers



Teachers  
love  
the learning  
centers!

**Learning Centers provide a place for students to extend their understanding of new concepts and engage in more independent work.**

Learning centers serve several purposes. They offer a natural place for small group activities. They provide a control point for the gradual release of responsibility to students and groups of students as they engage in increasingly independent work. They enable students with diverse learning styles to practice new skills in multiple settings. Learning center activities are identified in the lesson plans by the icons shown below.



**Let's Pretend.** Activities involving acting out, pretend, and dress-up



**Art.** Activities involving coloring, drawing, and gluing



**Music.** Activities involving singing, rhyming, dancing, and finger plays



**Science.** Activities involving observing, collecting, and measuring



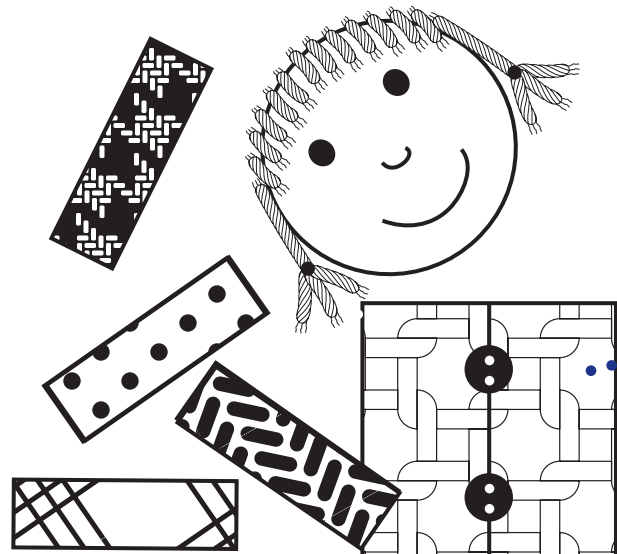
**ABC.** Activities involving phonological awareness and word recognition



**Writing.** Activities involving tracing and writing numbers or words



**Game.** Engaging activities involving counting, sorting, and comparing





# Connect to real-world math

## Writing Center Activity



### Symmetry of Capital Letters

Provide students with cut out capital letters: A, P, Y, O. **Can you find a letter that has exactly 1 line of symmetry? Can you find a letter that has 2 lines of symmetry? Can you find a letter that has 3 lines of symmetry?**

### Skill Builders



### Writing

Have students write about their findings. **Down and over** That's the way

## Science Center Activity



### Daily Weather

Use Master 3 to keep a chart of the daily weather of the school days for each month. **What kind of weather are we having right now? Is it cloudy? Sunny?** Each day have a child color a picture of the weather. At the end of the month, ask questions about the weather. **What weather did we have the most? Were there more sunny days or rainy days? How can you**

### Changes in Water

Place an ice cube on a plate in the morning. Explain that an ice cube is frozen water. **What do you think will happen to this ice cube if we leave it outside until school is over today?** Discuss the process throughout their day and show students how the ice is getting smaller.

## Art Center Activity



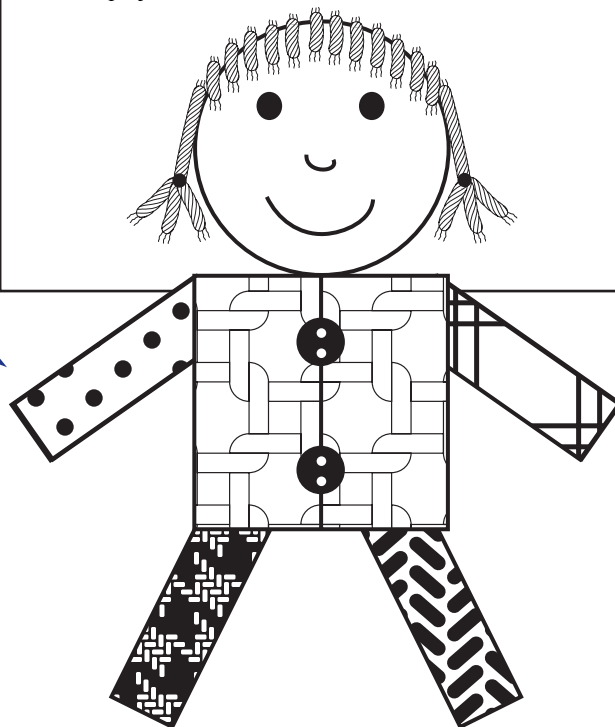
### Shape Child

For each child, cut 1 large square, 4 small rectangles, and 1 small circle from any colorful or patterned paper such as construction paper, wrapping paper, wallpaper, etc.

Direct how to glue the shapes in a body arrangement to another piece of paper (the large square is the trunk of the body, the 4 small rectangles are the arms and legs, and the small circle is the head).

If there is time, let students add buttons on the child's shirt, yarn for hair, draw in a face, etc.

When the pictures are finished and the glue has dried, have students go through and name the shapes they used for the project.



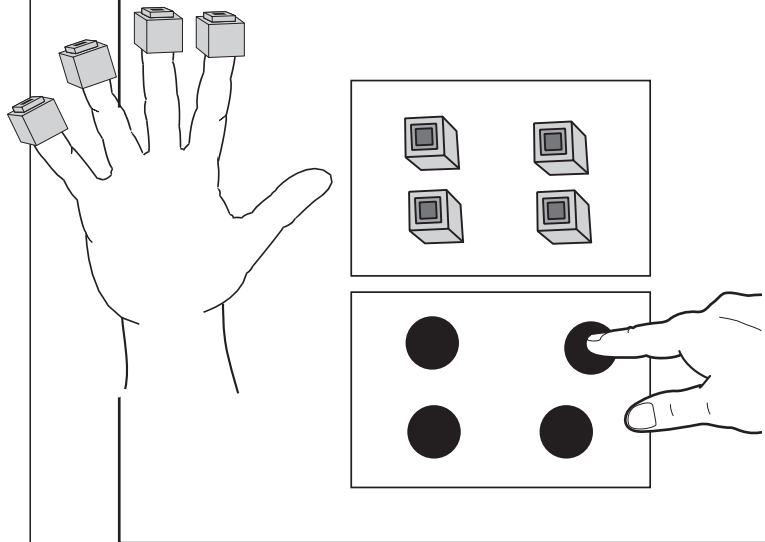
# Structured Lessons

## step 1

### Introduce the concept

#### *Matching Dot Pattern Cards to Objects*

Provide 6 cubes and materials for dot pattern cards to each student. **Show me exactly 4 cubes on your fingers. Say the word “four” as you look at the cubes. Now put your cubes on one of your cards. Place a dot on the card for each cube.**



#### Lesson Structure:

Lessons are structured to follow a **gradual release instructional model**.

Every lesson starts with a **teacher-directed activity** and then gradually releases the student to engage in **progressively more independent work**.

All lessons encourage **responsive teacher-student interactions**. The use of manipulatives provides a **shared workspace** and introduces numerous opportunities for **observation, praise, and encouragement**.

### 1 Introductory Activity

**Whole-class activity.** Teacher demonstrates the new concept or operation while students observe and follow along. Here students are directed to place four cubes on their fingers (as they count out loud) and then to place the cubes on a Dot Pattern Card. **Hands-on activities** like this one allow students to discover math concepts through experiences that address multiple senses and multiple learning styles.

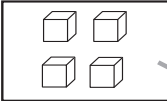
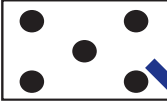
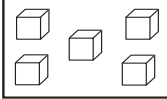
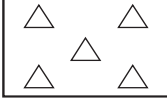
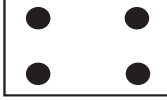
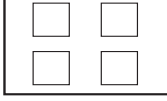

Well-organized, **explicit instruction** is the heart of the *Moving with Math* Learning System. The curriculum is designed to connect hands-on activities to visual representations in the student book and then to the more abstract symbols of math.

## step 2

### Apply the concept

Name \_\_\_\_\_


Draw lines to match.

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	<div style="border: 1px solid black; width: 100px; height: 100px; display: flex; align-items: center; justify-content: center; font-size: 48px; font-weight: bold;">5</div>
	
	
	
	

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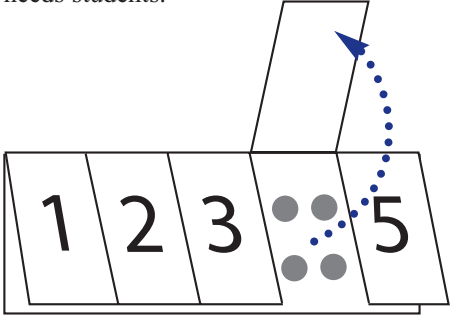
## step 3

### Extend, reinforce the concept



#### *Flip-Flop Book Skill Builders 5-2*

Help students assemble a flip-flop book using the picture here as a guide. Write the numbers 1, 2, 3, 4, and 5 on the front flaps. Place the matching number of dots under each flap. Have students use the book like flash cards. They can leave all of the flaps down but one and see the quantity of the number, or they can lift all of the flaps up, count the dots, then check their answer. This is especially helpful with special needs students.



### 2 Connections Activity

**Guided activity.** Teacher guides activities that relate the new concept to visual representations, workmat constructions, drawings, and problem-solving. Here students are asked to match sets of objects to written numerals. Activities like this one assist students in making the transition from a hands-on, concrete understanding of math concepts to a more abstract understanding.

### 3 Follow-Up Activities

**Extended activity.** Teacher releases students to learning centers for activities that reinforce the new math concept. These activities may include center-based activities related to science, art, music, or reading and writing. Learning-center activities are fun, active, and help ‘clinch’ the math concept. *Skill Builders* may be assigned for additional skill development, targeted practice, or fluency building.

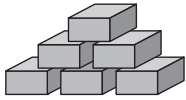
## Curriculum Features

### Standards-based curriculum



All parts of the **Connections** curriculum are linked to national math content standards. All screening materials, periodic assessments, student workmats, blackline masters, and Skill Builders are available in **Spanish** as well as in English.

### Scaffolded content



The instructional model followed in **Connections** is carefully structured to ensure that math content is properly sequenced for efficient learning. The essential math concepts are built from the ground up, so there is less risk that a student will stumble in the learning process.

### Gradual release concrete > visual > abstract



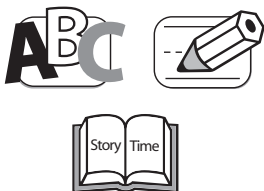
Research suggests that children learn first from concrete experiences. All activities in the **Connections** curriculum are supported by gradual release lesson plans that direct the exploration of each math concept first with **manipulatives** and hands-on activities. The **1-2-3 lesson plan structure** tracks along both the gradual release instructional model and the concrete–visual–abstract cognitive development model.

### Multiple learning styles Multiple teaching strategies



**Connections** recognizes that students in diverse classrooms exhibit diverse learning styles and explicitly addresses those varied learning styles. The wide range of learning activities included in the curriculum opens the door to learning for all students by providing differentiated instruction in even the most diverse settings. Follow-Up Activities are often tagged for one of the **Learning Centers**.

### Language development



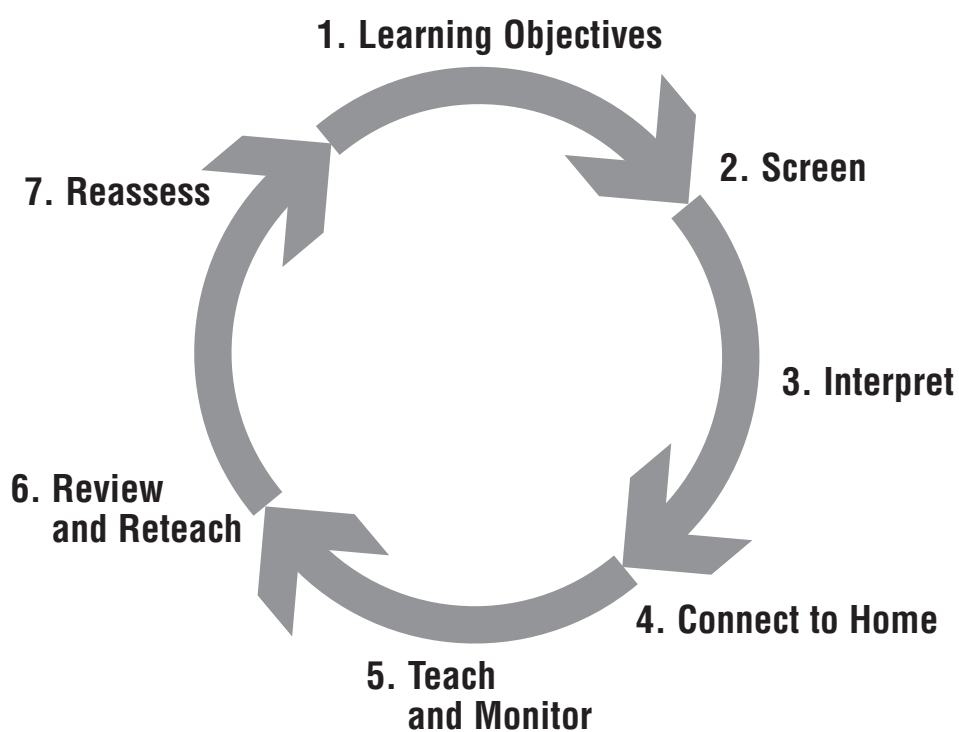
**Connections** explicitly teaches practical math vocabulary in all lessons.

A working math vocabulary establishes a solid connection between the concept being taught and the mathematical term used to describe it. Rhyming activities introduce children to phonemic awareness. D'Nealian letter/number tracing is included in key lessons and in language center activities. Children's stories encourage and support language development.

The **Connections** curriculum links standards-driven assessment to conceptually based, differentiated instruction.

The *Moving with Math*<sup>®</sup> **Learning System** keeps both teacher and student on task and simplifies the job of diagnosing, tracking, and reporting student progress.

## *Moving with Math*<sup>®</sup> Learning System



“All elements of the curriculum, instruction, materials, and assessment should be aligned to common learning goals.”

—*Adding It Up: Helping Children Learn Mathematics*, National Research Council,  
J. Kilpatrick, J. Swafford,  
and B. Findell

Pages 14–25 will guide you through our teacher-friendly curriculum.  
Start at Step 1 and continue through Step 7.

Start





















# Step 1

## Start with Learning Objectives

### Learning Objectives

## Correlation to Objectives, Pre-Kindergarten

Use this table to match objectives to pages in the Student Book and Skill Builders in the Teacher Manual.

STATE OBJECTIVE	OBJ ICON	MTP OBJ	<b>Numeration, Sorting and Patterns</b>	<b>Student Book</b>	<b>Skill Builders</b>
		<b>PK-1</b>	Identify and sort by color.	2-4	1-1
		<b>PK-2</b>	Develop an understanding of one-to-one correspondence and conservation of number. Compare two sets of objects to determine if they have the same number.	14, 15	2-1
		<b>PK-3</b>	Identify which of two sets has more or less (fewer) objects. Determine which of two sets of objects has many objects or just one object.	16-19, 44, 50	3-1, 3-2
		<b>PK-4</b>	Identify and extend a pattern using color, people, objects, pictures, and numbers.	61-67, 71, 72, 75-79	4-1, 4-2, 4-3
		<b>PK-5</b>	Count the number in a collection of up to ten objects through active participation. Match sets of 0 to 12 objects with the written numbers.	43, 45-49, 52, 54-57, 101-110, 117, 118	5-1, 5-2, 5-3, 5-4, 5-5, 5-6, 5-7
		<b>PK-6</b>	Write the number for a set of 0-5 objects or for a picture of 0-5 objects.	51	6-1
		<b>PK-7</b>	Order numbers from 0 to 10. Count forward and backward from any number between 1 and 10. Find the number that comes next, before or between.	58, 75-77, 111-115, 147	7-1, 7-2, 7-3, 7-4
		<b>PK-8</b>	Physically compare two sets of up to 10 objects to find the set that is more.	151, 152	
		<b>PK-9</b>	Identify ordinal numbers first to fifth.	59, 116	9-1, 9-2
		<b>PK-10</b>	Count aloud to 31. Order numbers to 31 using a calendar.	7, 113-119	10-1
		<b>PK-11</b>	Read aloud numbers 0–31 written with digits.	7, 119	11-1
			<b>Geometry</b>		
		<b>PK-12</b>	Identify positional words: top, middle, bottom, inside, outside, left, right, in, out, over, under, on, off, above, below, forward, backward, before, after, between, in front of, behind.	1, 9-11	12-1, 12-2
		<b>PK-13</b>	Classify and sort objects by size and shape. Identify what does not belong. Identify how objects are alike and different.	12, 13	13-1, 13-2
		<b>PK-14</b>	Compare and order objects differing in just one attribute: big, little, biggest, smallest, same size; longer, longest; shorter, shortest, same length; taller, tallest, same height; wide, narrow, same width; thick, thin.	13, 29-31, 33, 84-86	14-1
		<b>PK-15</b>	Identify, compare, and sort plane figures: straight lines, curved lines, circle, square, triangle, rectangle, and oval. Slide, flip, and rotate shapes. Explore how shapes can be made within shapes and put together to form new shapes. Identify figures with symmetry.	21-23, 25-27, 32, 34, 36, 68-70, 73, 74	15-1, 15-2, 15-3, 15-4
		<b>PK-16</b>	Identify and compare the forms of 3-dimensional figures: ball, can, and box.	37, 38	16-1, 16-2
			<b>Measurement</b>		
		<b>PK-17</b>	Define time intervals as day and night. Know the names of months, days of the week, and seasons.	6-8	17-1
		<b>PK-18</b>	Identify which activity takes more time or less time.	99	18-1, 18-2
		<b>PK-19</b>	Participate in a discussion about daily schedule.	5, 99	
		<b>PK-20</b>	Estimate and measure length and height using arbitrary units. Compare and order objects by length and height.	81-88	20-1, 20-2

cont. next page

## Administer Screening

# Step 2

## Pre-Test Screening

The Pre-Test **Screening** for Connections Pre-Kindergarten establishes a **baseline** for gauging the progress of individual students and the class as a whole.

The Screening test battery includes both a **manipulative based assessment** designed to be administered on a **one-on-one basis** to individual students and a **paper-and-pencil** screening that may be administered to a group of students or to the whole class. The manipulative test requires the teacher (or teacher aid) to guide the activity, observe the student's response to each question, and record the student's performance on the **Student Progress Report**.

### Manipulative Test

Instructions for administering a **manipulative version** of the **Screening** are **scripted** to insure consistent administration and valid test results.

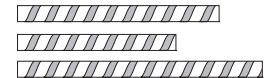
#### Pre-Kindergarten Manipulative-Based Screening Instructions



**PK-14** compare by attribute

Display 3 straws or pencils of different lengths.

Say: **Which straw is longest? Point to the longest straw.**



### Matching Questions in Spanish

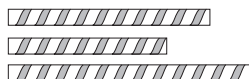
#### Pre-Kindergarten Manipulative-Based Screening Instructions



**PK-14** compare by attribute

Display 3 straws or pencils of different lengths.

Say: **¿Cuál es el popote más largo? Señala el popote más largo.**



# Step 3

## Interpret Student Needs

### Record Sheets

The **Class Record Sheet** is organized by objective, so a teacher can identify class weaknesses for each learning objective/standard, and identify *individual* students who are at-risk. At a glance, teachers can also select students for differentiated instruction in small groups. The **Student Progress Report** identifies the strengths and weaknesses of individual students and may be used to guide RTI placement.

#### Using the Class Record Sheet

### Class Record Sheet

The **Class Record Sheet** allows the teacher to identify at-risk students, group students for differentiated instruction, and identify content objectives that need extra attention.

The **Class Record Sheet** can help answer questions like these:

1. Who are my three weakest students?
2. Who are my three strongest students?
3. Which learning objectives are the weakest?

### Pre-Kindergarten Class Record

School \_\_\_\_\_ Teacher \_\_\_\_\_

Student Name							
	1	2	3	4	5	6	7
Pre-							
Post-							
Pre-							
Post-							
Pre-							
Post-							
Pre-							

### Pre-K Student Progress Report

Student \_\_\_\_\_ Teacher \_\_\_\_\_  
School \_\_\_\_\_  
Days Absent \_\_\_\_\_

<p><b>Numeration, Sorting and Patterns</b></p> <p><input type="checkbox"/> <b>PK-1</b>  Identify and sort by color.</p> <p><input type="checkbox"/> <b>PK-2</b>  Compare two sets of objects to determine if they have the same number.</p> <p><input type="checkbox"/> <b>PK-3</b>  Identify which of two sets has more or less objects. Determine which of two sets of objects has many objects or just one object.</p> <p><input type="checkbox"/> <b>PK-4</b>  Identify and extend a pattern using color, people, objects, pictures and numbers.</p> <p><input type="checkbox"/> <b>PK-5</b>  Count the number in a collection of up to ten objects through active participation. Match sets of 0 to 12 objects with the written numbers.</p> <p><input type="checkbox"/> <b>PK-6</b>  Write the number for a set of 0-5 objects or for a picture of 0-5 objects.</p> <p><input type="checkbox"/> <b>PK-7</b>  Order numbers from 0 to 10. Count forward and backward from any number between 1 and 10.</p> <p><input type="checkbox"/> <b>PK-8</b>  Physically compare two sets of up to 10 objects.</p> <p><input type="checkbox"/> <b>PK-9</b>  Identify ordinals first to fifth.</p> <p><input type="checkbox"/> <b>PK-10</b>  Count aloud to 31. Order numbers to 31 using a calendar.</p> <p><input type="checkbox"/> <b>PK-11</b>  Read aloud numbers 0-31 written with digits.</p> <p><b>Geometry</b></p> <p><input type="checkbox"/> <b>PK-12</b>  Identify positional words: top, middle, bottom, inside, outside, left, right, in, out, over, under, on, off, above, below, forward, backward, before, after, between, in front of, behind.</p> <p><input type="checkbox"/> <b>PK-13</b>  Classify and sort objects by size and shape. Identify what does not belong.</p> <p><input type="checkbox"/> <b>PK-14</b>  Compare and order objects differing in just one attribute: big, little, biggest, smallest, same size; longer, longest; shorter, shortest, same length; taller, tallest, same height; wide, narrow, same width; thick, thin.</p> <p><input type="checkbox"/> <b>PK-15</b>  Identify, compare, and sort plane figures: circle, square, triangle, rectangle, and oval. Slide, flip, and rotate shapes.</p> <p><input type="checkbox"/> <b>PK-16</b>  Identify and compare the forms of 3-dimensional figures: ball, can, and box.</p> <p><input checked="" type="checkbox"/> Answer is correct.</p> <p><input type="checkbox"/> Tested only on manipulative-based screening and supplement to be used with paper-and-pencil screening.</p>	<p><b>Measurement</b></p> <p><input type="checkbox"/> <b>PK-17</b>  Define time intervals as day and night. Know the names of months, days of the week, and seasons.</p> <p><input type="checkbox"/> <b>PK-18</b>  Identify which activity takes more time or less time.</p> <p><input type="checkbox"/> <b>PK-19</b>  Participate in a discussion about daily schedule.</p> <p><input type="checkbox"/> <b>PK-20</b>  Estimate and measure length and height using arbitrary units. Compare and order objects by length and height.</p> <p><input type="checkbox"/> <b>PK-21</b>  Estimate and compare (informally) the weight and capacity of two objects. Understand concepts of area and temperature.</p> <p><input type="checkbox"/> <b>PK-22</b>  Identify an object divided into equal parts. Identify halves, one half of a region, fourths, one quarter of a region.</p> <p><input type="checkbox"/> <b>PK-23</b>  Explore concepts of probability and chance using objects. Construct simple arrangements.</p> <p><input type="checkbox"/> <b>PK-24</b>  Identify and give the value of a penny.</p> <p><input type="checkbox"/> <b>PK-25</b>  Give the value of a set of pennies up to 5 cents.</p> <p><b>Operations</b></p> <p><input type="checkbox"/> <b>PK-26</b>  Join two sets of objects and tell the total, sums to 5. Match a pictured problem to an addition fact. Make a collection of objects larger by adding items when asked.</p> <p><input type="checkbox"/> <b>PK-27</b>  Remove a number of objects and state the number left. Make a collection of objects smaller by taking away items when asked.</p> <p><input type="checkbox"/> <b>PK-28</b>  Find how many more or fewer in 2 unequal sets.</p> <p><b>Problem Solving, Graphing</b></p> <p><input type="checkbox"/> <b>PK-29</b>  Solve problems including those that involve using a model and acting it out. Understand first, next, and last.</p> <p><input type="checkbox"/> <b>PK-30</b>  Gather information for a graph. Use physical objects to make a graph.</p> <p><input type="checkbox"/> <b>Total Score (out of 30 possible)</b></p> <p>30 30</p>
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COPY AND ATTACH TO OTHER SIDE

### Student Progress Report

The **Student Progress Report** provides a record of individual student progress. A copy of the Student Progress Report can be sent home to keep parents connected and informed.



The **Family Math** letters (blackline masters of these letters for each unit are found in the Teacher Manual) provide an important link between classroom and home. Letters include information about the math being taught, suggested books to read, math words to use, and fun activities to do at home. **Family Math** letters are available in both English and **Spanish**.

**Family Math in Spanish**

Enséñenle a su hijo que al combinar un número con otro número se hace un número más grande "en total." Por ejemplo, díganle: "Hay tres personas en la mesa. Después llega otra persona a la mesa. Ahora hay más personas en la mesa."

Dear \_\_\_\_\_:

**Hello from Moving With Math!**



In Unit 7 during the next few weeks, students will be learning how "putting together" two numbers makes a bigger number.

**Learning To Add (Putting Together)**

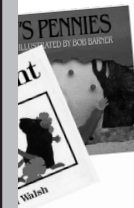
Students combine classroom objects, toys, shapes, and pennies. They bring groups of classmates together to make a larger group. Students will tell stories about putting up to 5 items or people together and then say how many there are altogether.

Look for opportunities to "put together" the sorts of things that are especially familiar with—toys, food items, or articles of clothing. At the store say, "If we choose two cans of soup and then choose one more, will there be more cans or less? How many cans of soup will we have altogether?" When walking through your neighborhood, ask, "If three cars are parked on the street here and then two more cars park here, how many cars are parked altogether?"

Show your child how combining one number with another makes a bigger number "in all." For example, say, "There are three people at the table. Now there are four more people at the table. How many people are at the table altogether?"

one more      two more      pennies      graph

Sincerely, \_\_\_\_\_



¿le tendrías?  
Hagamos de  
vay echando al  
cándolas." Leer  
temáticas y el

Unit 7 Letter

**Pay and Play**

Create a chart of daily activities with your child. Assign "prices" to each activity (up to 5 cents). When your child wants to play with toys, read a story, eat a snack, watch a TV show, etc., ask for the number of pennies it "costs" to do this. (Give your child plenty of extra pennies so he doesn't run out.)

**Penny Finder**

Let your student search the house or car for spare change, allowing your child to only pick up the pennies she finds. When finished, count the pennies and use them to make number stories where the number increases.

**Read and Add**

Check out a book from the library. As you read, create number stories with your child about what happens in the book.

**Cars on the Road**

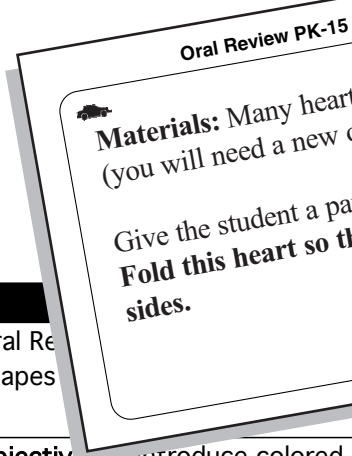
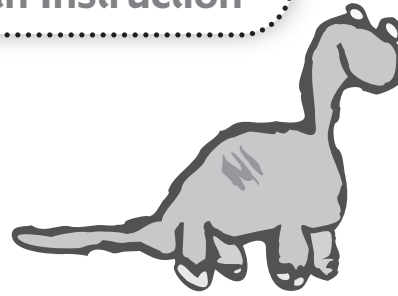
Sit outside or look through a window and watch the cars go by. Take turns making number stories about the cars, buses, or bicycles that pass. For example, say, "I saw 2 cars go into the parking lot. Now there are more cars in the lot!"

You may cut out these activities, paste them on 3 x 5 cards and keep them in a recipe box near your child's homework area.

# Step 5

## Pacing Calendar

### Plan Instruction



#### Lesson Planning:

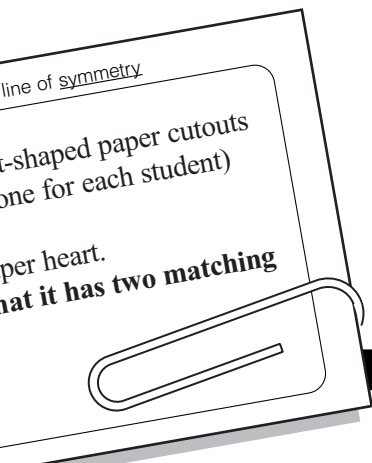
The pacing calendar directs the instruction for each lesson and reduces planning and prep time. Teachers turn to the Unit Overview in the Teacher Manual to find their pacing calendar for that unit.

Each lesson may be taught in one or more periods, depending on the time available and the number of games and learning center activities selected.

Reinforce/Review	Oral Review shapes
Lesson	<p><b>Objectives:</b> to introduce colored number rods; to compare and order teddy bear counters and rods by height and length.</p> <p><b>Materials:</b> Teddy bear counters, colored number rods or rods made from Master 22, crayons, fun foam (optional)</p> <p><b>Teacher Guide page:</b> 86</p>
Workmat	Student book page 86
StoryTime	<i>The Best Bug Parade</i> , Murphy, Stuart J.
Games	
Connections	
Family Math Skill Building	



Each lesson lists the **objectives** taught, the **materials** needed, and the **lesson plan pages** used.

**StoryTime** introduces math concepts and math operations through stories in selected children's books.



**Reinforce** reviews previously covered material.

**Oral Reviews** may be used to monitor progress.

	Lesson 88	Lesson 89	Lesson 90
	Oral Review PK-15 lines of symmetry	Reinforce measuring with non-standard units (page 87 or 88)	Reinforce comparing lengths (page 86)
<p><b>Objective:</b> to measure with non-standard units.</p> <p><b>Materials:</b> Interlocking cubes, Numeral Cards 1–5 (Masters 7 and 8), Bunk Beds (Master 30), bean seeds, plastic cups with small holes cut in the bottom and filled with dirt, amaryllis bulb (optional), teddy bear counters</p> <p><b>Teacher Guide page:</b> 87</p>	<p><b>Objective:</b> to measure length with non-standard units.</p> <p><b>Materials:</b> Paper clips, pencils, construction paper squares and triangles, cotton balls, Numeral Cards 1–5 (Masters 7 and 8)</p> <p><b>Teacher Guide page:</b> 88</p>	<p><b>Objective:</b> to introduce the concept of area by using smaller, same-sized objects to cover a larger shape.</p> <p><b>Materials:</b> Pattern Blocks, paper of different sizes, crayons, Numeral Cards 1–5 (Masters 7 and 8), sticky notes</p> <p><b>Teacher Guide page:</b> 89</p>	<p><b>Objective:</b> to compare temperatures.</p> <p><b>Materials:</b> Containers with water of different temperatures, ice cubes, paper cups, crayons, access to a freezer (optional), mittens, scarves</p> <p><b>Teacher Guide page:</b> 90</p>
Student book page 87	Student book page 88	Student book page 89	Student book page 90
<i>Ten Beads Tall</i> , Adams, Pam	<i>The Dinosaur Who Lived in My Back Yard</i> , Hennessy, Barbara	<i>Jack and the Beanstalk</i> (any version)	<i>The Jacket I Wear in the Snow</i> , Neitzel, Shirley <i>Heat Wave</i> , Ketteman, Helen
	Throwing Cotton Balls		
Measuring Plant Growth 			Comparing Temperatures Changing Temperatures Dress for the Season 
Skill Builders 20-1		Skill Builders 21-1	Skill Builders 18-2

**Connections to Art, Science, Music, and Let's Pretend** encourage students to demonstrate their knowledge in a variety of ways.

**Games** at the end of the lesson make learning more fun and help “clinch” student understanding.

**Skill Builders** matched to objectives provide targeted activities to differentiate instruction in class and provide practice at home.

# Step 5

## Instruction

### Lesson Plan

Each lesson in the Teacher Manual is structured in a logical and predictable way. Lesson plans follow a gradual release instructional model. Structured lesson plans provide professional development every day.

#### Getting Ready:

**Objective:** *To identify which group has more*

**Materials:** *Small teddy bear counters, Same, More, Less (Unit 1 Master Workmat), cereal pieces (optional)*

**Vocabulary:** *more*

**StoryTime:**  *Count and See, Hoban, Tana*

**Reinforce:** *matching objects one-to-one (pages 14 and 15)*

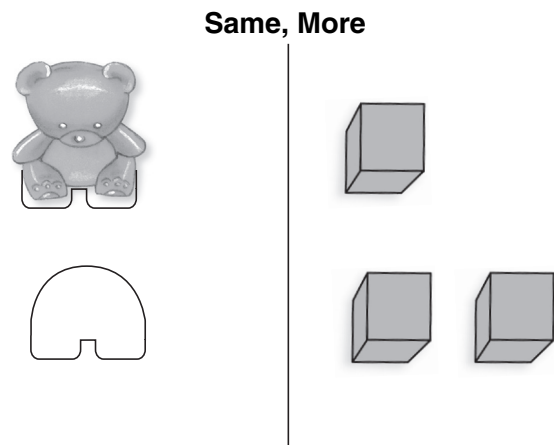
# step 1

## Introduce the concept

### Master Workmat: **More**

Using Same, More, Less (Unit 1 Master Workmat) located at the end of the student book, have the students place 1 to 4 small bears on the footprints at teacher direction. **Place one bear on the footprint. Put one treat for each bear on the other side of the mat.** **Now add one more treat than there are bears.**

Check students' work.



## 1 Introductory Activity

A whole-class activity involving explicit instruction related to a new concept or operation. Typically these **hands-on activities** allow students to discover math concepts through directed, hands-on experience. These activities often involve the use of manipulatives and research-based problem-solving strategies, such as using models, or acting out a concept.

## step 2

### Apply the concept

Name \_\_\_\_\_

Make a set with **1 more**. Draw a picture. **more**

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## 2 Connections Activity

Activities the instructor and students use to connect the hands-on activity to visual representations and **workmat** constructions, drawings, and problem-solving. These are designed to be used (in pairs, in small groups, or as independent work) with guidance from the instructor. This guidance will often require the instructor to walk the class through the entire activity.

## step 3

### Extend, reinforce the concept

#### Comparing Numbers of Bears

Sort out a pile of small teddy bear counters. Name two students and ask each of them to take a handful of small bears.

**Is the number of bears \_\_\_\_\_ has the same or different than the number of bears \_\_\_\_\_ has?**

**Who has more bears?**

**Put the bears in front of you and match bears, one by one, until 1 person has no more bears.**

Ask the question again and have a student describe her answer. (Student A has more bears than student B because when 1 bear from each person was matched together, student A had bears left over.)


## 3 Follow-Up Activities

Activities used at learning centers to extend and reinforce a new math concept. **Follow-up activities** may include center-based work related to science, art, music, or reading and writing. These activities may also include playing games and Let's Pretend. These activities are meant to be fun and active and help 'clinch' the math concept. *Skill Builders* may be assigned for additional skill development, targeted practice, or fluency building.

# Step 6

## Progress Monitoring

### Oral Reviews

**Oral Reviews** provide continuous, student progress monitoring of all objectives. These **Oral Reviews** are aligned with the Pre-Kindergarten learning objectives. The objective being reviewed is identified by a symbol at the top of each review, by an objective number, and by a brief description following (  **PK-20** *measuring length and height*). **Oral Reviews** are provided in **Spanish**, as well as English.

### Matching Oral Reviews in Spanish



#### 1 more or less time

**MATERIALS:** None

Ask questions related to activities at home or at school.  
**¿Qué crees que tome más tiempo: prepararse para ir a la escuela o lavarse los dientes?**  
**¿Caminar hacia la puerta o correr hacia la puerta de este cuarto o caminar a la puerta de enfrente del cuarto?**  
**¿Rastrillo un montón de hojas o aventarse a un árbol?**

#### 2 a minute

**MATERIALS:** None

Ask questions as to which activities take a minute.  
**¿Qué se tarda un minuto: Lavarte las manos o leer un libro?**

#### Oral Review PK-20 measuring



#### 1 length

**MATERIALS:** Interlocking cubes and an index card pre-measured and/or cut to ensure its length equals an exact number of cubes (5 or less).  
Display the cubes and card.

**Mide el papel con los cubos. Dime cuántos cubos cubren el papel.**

#### 2 height

**MATERIALS:** Magazine pictures of students of different heights.  
Display pictures of three students.

**¿Cuál niño es el más alto? ¿El más bajo?**  
**Ordena a los niños del más bajo al más alto.**

#### Oral Review PK-18 more or less time



#### 1 more or less time

**MATERIALS:** None

Ask questions related to activities at home or at school.

**Which do you think takes longer: getting ready for bed or sleeping? Walking to the door or running to the door? Walking to the door of this room or walking to the front door of the school? Raking a pile of leaves or jumping into a pile of leaves?**

#### 2 a minute

**MATERIALS:** None

Ask questions as to which activities take a minute.

**Which takes a minute: Washing your hands or taking a bath? Writing your name or reading a book?**

#### Oral Review PK-20 measuring length and height



#### 1 length

**MATERIALS:** Interlocking cubes and an index card pre-measured and/or cut to ensure its length equals an exact number of cubes (5 or less).  
Display the cubes and card.

**Measure the paper with the cubes. Tell me how many cubes long the paper is.**

#### 2 height


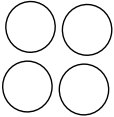
**MATERIALS:** Magazine pictures of students of different heights.  
Display pictures of three students.

**Which child is tallest? Shortest?**  
**Arrange the children in order from shortest to tallest.**



**Unit Reviews** and **Unit Assessments** provide on going tracking of student progress and test mastery of important concepts at the end of each unit. These reviews and assessments are linked to the learning objectives taught in each unit. Instructions for both one-on-one and paper-and-pencil administration the **Unit Assessments** are included in the Teacher Manual. **Unit Reviews** and **Unit Assessments** are provided in **Spanish**, as well as English.

**Unit 3 Assessment**



Name \_\_\_\_\_

1  



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2  



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3  



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4  

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5  

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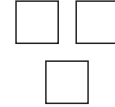

6  

**Unit 3 Review**



Name \_\_\_\_\_

1    



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2    



---

3   **1 2 3**



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4   \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

---

5   **1 2 3**

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6  

60

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# Step 6

## Reteach, Skills Practice

### Skill Builders

**Reproducible Blackline Masters and Skill Builders.** *Skill Builders* make it easy to differentiate instruction for targeted reteaching for each student. *Skill Builders* may be assigned as Follow-Up Activities at the end of many lessons and may be assigned to students who need extra practice, concept reinforcement, or targeted one-on-one attention.

Name \_\_\_\_\_

Draw lines to match.

### Matching Skill Builders in Spanish

Une con una línea lo que corresponda.

3

2

1

**Skill Builder 5-1**

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#### Building Skills

*Skill Builder* reteaching worksheets rely heavily on illustrations and other kinds of graphic aids to explain and reinforce the transition from concrete to abstract.



# Verify Progress

# Step 7

## Post-Test Assessment

A **Post-Test** is administered at the end of the program to measure student progress. Post-Test questions are parallel to the comparable Pre-Test questions in both the paper-and-pencil and manipulative format.

The **Student Record Sheet** compares Pre- and Post-Test results and shows the student's progress relative to each objective and each math content standard.

**Pre-Kindergarten Pre-Screening**

Name \_\_\_\_\_

© Math T...

### Pre-K Student Progress Report

Teacher \_\_\_\_\_  
School \_\_\_\_\_  
Days Absent \_\_\_\_\_

Student \_\_\_\_\_

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<p><b>Numeration, Sorting and Patterns</b></p> <p><input type="checkbox"/> <input type="checkbox"/> <b>PK-1</b>  Identify and sort by color.</p> <p><input type="checkbox"/> <input type="checkbox"/> <b>PK-2</b>  Compare two sets of objects to determine if they have the same number.</p> <p><input type="checkbox"/> <input type="checkbox"/> <b>PK-3</b>  Identify which of two sets has more or less objects. Determine which of two sets of objects has many objects or just one object.</p> <p><input type="checkbox"/> <input type="checkbox"/> <b>PK-4</b>  Identify and extend a pattern using color, people, objects, pictures and numbers.</p> <p><input type="checkbox"/> <input type="checkbox"/> <b>PK-5</b>  Count the number in a collection of up to ten objects through active participation. 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**Total Score (out of 30 possible)**

30 30 Assessment 5

# Unit 1

## Sorting and Comparing











### Overview Unit 1

**Unit 1** focuses on **sorting, classifying, and comparing sets** of objects—critical activities in a child's development. Young children start by comparing objects because numbers are too abstract. Activities that develop the idea of **one-to-one correspondence** and **conservation of number** help children understand the concept of equal groups. Students make and compare two unequal groups to develop the concepts of more and less. Students explore orientation in time (a schedule, a calendar) and orientation in space (positional terms).

Students learn to select a set according to the attribute of color, size, or position of the set. They see the whole set as composed of smaller sets that have a common attribute.



### Objectives

-  **PK-1** Identify and sort by color.
-  **PK-2** Develop an understanding of one-to-one correspondence and conservation of number. Compare two sets of objects to determine if they have the same number.
-  **PK-3** Identify which of two sets has more or less (fewer) objects. Determine which of two sets has many objects or one object.
-  **PK-10** Count aloud to 20 to 31. Order numbers to 31 using a calendar.
-  **PK-11** Read aloud numbers 0–31 written with digits.
-  **PK-12** Identify positional words: top, middle, bottom, inside, outside, left, right, in, out, over, under, on, off, above, below, forward, backward, before, after, between, in front of, behind.
- PK-13** Classify and sort objects by size and shape. Identify how objects are alike and different. Identify what does not belong.
- PK-14** Compare and order objects differing in just one attribute: big, little, biggest, smallest, same size; longer, longest; shorter, shortest, same length; taller, tallest, same height; wide, narrow, same width; thick, thin.
-  **PK-17** Define time intervals as day and night. Know the names of months, days of the week, and seasons.
-  **PK-19** Participate in a discussion about daily schedule.
-  **PK-29** Understand order of events.
-  **PK-30** Gather information for a graph. Use physical objects to make a graph. Count and tally numbers.

## Understanding whole-part relationships

**Objective:** To sort objects by color. To explore whole-part relationships in sets of objects. To use logic to classify sets.

**Materials:** Crayons, teddy bear counters, yarn, balloons

**Vocabulary:** part, whole, favorite

**Storytime:**

⑤ *Of Colors and Things*, Hoban, Tana

**Reinforce:** color matching (page 2)

### 1 Introductory Activity

**NOTE**

In this activity, children select from the whole set of bears a smaller set according to the attribute of color. They see the whole set as composed of smaller sets with a common attribute.



#### Whole-Part Relationships

Set a large group of teddy bear counters out on the floor or a table and gather the students around it. **Here is our whole set of bears. If we take all the red bears away, will there be any bears left in the play area?** Have students remove only the red bears and answer the question, "yes." **The red bears are part of the whole set. Put the red bears back into the yarn circle.**

**Let us separate our whole set by sorting out and placing all the red bears inside the yarn play area.** Have volunteers place 1 red bear at a time inside the loop until all red bears are inside the loop.

**NOTE** | Pre-school children master material and concepts through motions.

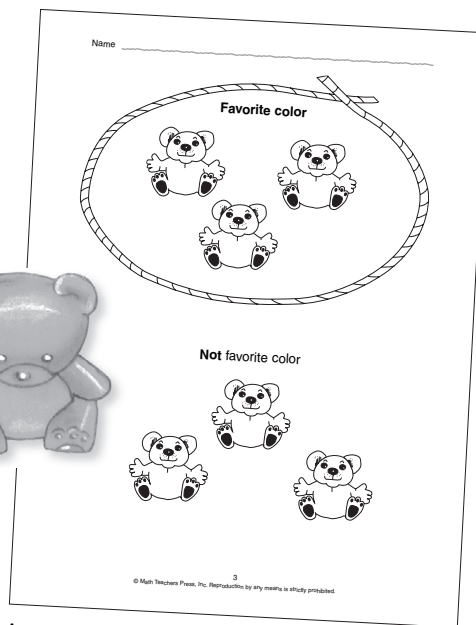
Make a circular motion with your arms as you ask, **What shall we call the set of bears inside the loop?** (all the red bears) **What should we call all the bears outside the loop?** (all but the red bears, or not the red bears, or red) Continue to emphasize that the red bears are a part the whole set of all of the bears. Repeat the activity and the questions, this time separating the blue bears from the large set of bears and describing the 2 sets as "blue bears and "not blue bears."

### 2 Connections Activity

Ask a child to choose 1 teddy bear counter color. Give that child 3 bears of that color (e.g., green) and 3 bears of other colors.

**Put all the bears of your chosen color inside the loop. Today this bear is your favorite color. Put the other bears outside the loop. What do we call the bears inside the loop?** (green bears) **What do we call the bears outside the loop?** (e.g., not green bears)

Repeat the activity with another child. Have teddy bear counters available for all the children. **Take some of your favorite color bears and put them**



**inside the loop. Color the bears inside the loop your favorite color. How would you describe the bears inside the loop? Color the bears outside the loop with other colors. How would you describe the bears outside the loop?** (The bears are not \_\_\_\_\_)

What did we do in this lesson? (selected our favorite color bears from the whole set)

### 3 Follow-Up Activities

#### Sample Follow-Up Games

##### Inside-Outside

Divide the class into 2 teams of equal number. Have 1 team form a circle and the other team form a circle around the inner team. A child on the outside is given a balloon and tries to "bat" the balloon *inside* the circle. Children standing in the inner circle try to bat the balloon back without letting it hit the ground. The outside group wins a point if the balloon lands on the floor inside the circle and vice versa.

##### Visual Memory

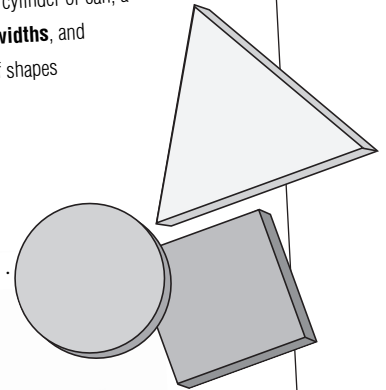
Display a row of 4 small bears, 1 bear of each color, to a small group of children. Ask students to study the bears and then close their eyes while you remove 1 of the bears, leaving the others in place. Have the children open their eyes and tell which bear is missing.

### Overview Unit 2






**Unit 2** focuses on developing children's awareness of **geometric shapes**. After the model of a shape is presented and named, the teacher and students use their fingers to outline the outer edge of the shape to gain a perception of its form. The initial emphasis is on a circle and a square, followed by a triangle, rectangle, oval, a cylinder or can, a sphere or ball, and a cube or box. Children compare the **lengths, widths, and heights** of objects. Students make a graph to record the number of shapes in a small collection.

### Learning basic shapes

Students learn to identify basic geometric shapes and understand the distinctive attributes of each one. The forms of newly introduced shapes are reinforced through the use of precise language, e.g., **straight lines, curved lines, vertical, horizontal.**



### Objectives

-  **PK-14** Compare and order objects differing in just one attribute: big, little, biggest, smallest, same size; longer, longest; shorter, shortest, same length; taller, tallest, same height, wide, narrow, same width, thick, thin.
-  **PK-15** Identify, compare, and sort plane figures: straight lines, curved lines, circle, square, triangle, rectangle, and oval. Slide, flip, and rotate shapes. Explore how shapes can be made within shapes and put together to form new shapes.
-  **PK-16** Identify and compare the forms of 3-dimensional figures: ball, can, and box.
-  **PK-23** Explore concepts of probability and chance using objects. Construct simple arrangements using up to 3 objects.
-  **PK-30** Gather information for a graph. Use physical objects to make a graph. Count and tally numbers.

Identifying matching shapes

**Objective:** To explore whole-part relationships using attribute blocks. To identify two matching shapes.

**Materials:** Set of attribute blocks or attribute cards (Master 4), yarn, crayons, bag, paper

**Storytime:**

Ⓔ *A Pair of Socks*, Murphy, Stuart J.

**Reinforce:** straight and curved lines (page 22)

**1 Introductory Activity**

**Whole-Part Relationships with Attributes**

Display the box or tub of attribute shapes. Attribute shapes vary in four ways: shape (circle, square, triangle, rectangle), color (red, yellow, blue), size (small, big), thickness (thick, thin). Make a yarn ring next to the box. Select a circle and display the shape to the class. As you run your fingers around the edge of the circle, say, **This is a round shape that will roll.**

Allow a child to roll the shape.

Have volunteers, one by one, place 1 round shape inside a yarn ring. Make a circular motion of your arms as you ask, **What shall we call all the shapes inside the ring?** (round) **What might we call all the shapes still in the box?** (not round) Emphasize that the round shapes are a part of the whole set of shapes.

Put the circles back in the box. Repeat the activity and the questions, this time separating the shapes with corners from the whole set.

**2 Connections Activity**

Here are some of the shapes we have been working with. The letters in the shapes at the top of this page tell us what color to use for the shapes on the bottom. What shape is this? Point to the circle. The "r" inside the circle means we will color circle shapes red. The red circle block and put it on the circle on this page. Now move your block and color the circle red.


Repeat for the square and triangle. Have students place any color block on the rectangle and color it green.

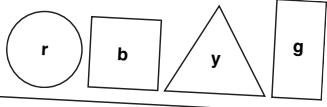
**3 Follow-Up Activities**


**Feel and Find**

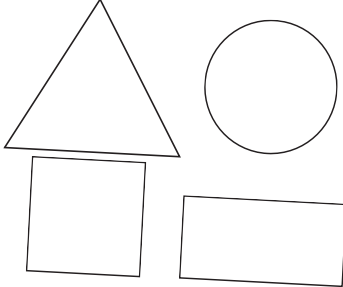
Place 1 attribute block of each shape in a bag. Display 1 of each shape outside the bag. Point to a shape. Ask a child to use the sense of touch to find the matching shape inside the bag.

Name \_\_\_\_\_

 these shapes.



 the same shapes the same color.



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 **It Moves**

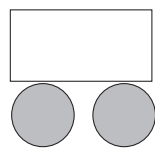
Give students a sheet of paper and have them work individually or with a partner to make a design of something that moves using attribute blocks. Then help students trace the design on the lower part of the paper and color the design. When they are finished, ask children to tell the story of their picture and name it.

**Sample Art Activity**

 **It Moves**

Give students a sheet of paper and have them work individually or with a partner to make a design of something that moves using attribute blocks. Then help students trace the design on the lower part of the paper and color the design. When they are finished, ask children to tell the story of their picture and name it.

I have a train car.

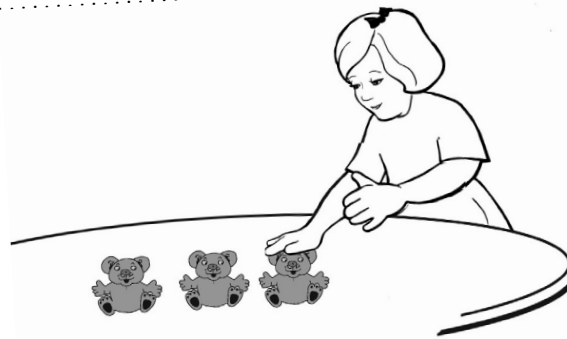


### Overview Unit 3

**Unit 3** begins the fundamental perception of numbers from zero to five. Students make and compare groups of equal or unequal size to develop the concepts of same, more, and less. To answer the question “how much” or “how many” objects there are in all, students must count them. The counting activities involve visual, tactile, and aural perceptions. Children match sets of objects to pictures of objects and to the written numerals 0 to 5. Emphasis is placed on understanding two essential concepts: one-to-one correspondence (every element in one set corresponds to one element in the other) and conservation of number (the number of objects stays the same regardless of how the objects are arranged). Children begin to write symbols for numbers and are introduced to ordinal positions—first, second, third.

### Counting to five

During counting, the total number is not named until the last object is touched, “**one, two, three—three bears in all.**” A circular motion is made with the hand after the last bear is touched to emphasize that the whole set has been counted.



### Objectives

- ★ **PK-2** Develop an understanding of one-to-one correspondence and conservation of number. Compare two sets of objects to determine if they have the same number.
- ♥ **PK-3** Identify which of two sets has more or less (fewer) objects. Determine which of two sets of objects has many objects or just one object.
- 🐻 **PK-5** Count the number in a collection of up to ten objects through active participation. Match sets of 0 to 12 objects with the written numbers.
- 🍷 **PK-6** Write the number for a set of 0–5 objects or for a picture of 0–5 objects.
- ☂ **PK-7** Order numbers from 0 to 10. Count forward and backward from any number between 1 and 10.
- 🎈 **PK-9** Identify ordinal numbers first to fifth.
- 🎂 **PK-30** Gather information for a graph. Use physical objects to make a graph. Count and tally numbers.

## Matching numbers to numerals

**Objective:** To match 3 objects with the numeral 3.

**Materials:** Teddy bear counters or interlocking cubes, small empty margarine tubs, salt box

**Vocabulary:** three

**StoryTime:**

Ⓔ *Three Ducks Went Wandering*, Roy, Ron

**Reinforce:** 1, 2, and many (pages 43 and 45)

### 1 Introductory Activity

#### Counting 3

Name 3 children, asking them to stand in front. **How many children are here in front of the class?** Touch and count 1, 2, 3, and make a circular motion as you say, **3 children.**

Find an object in the room of which there are exactly 3 (e.g., round tables). **How many round tables are in this room? How can we find how many?** (by counting) Touch and count “one,” touch and count “two,” touch and count “three, three round tables” as you make a circular motion with your hand.

Make the number 3 in the salt box as you say, **around a tree and around a tree, that’s the way to make a three.** Have children...

### Sample StoryTime Activity

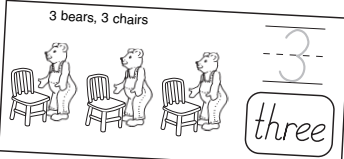
*E - Three Ducks Went Wandering*, Roy, Ron

**Summary:** Three little ducks wander away from their mother and fall into dangerous situations from which they manage to escape.

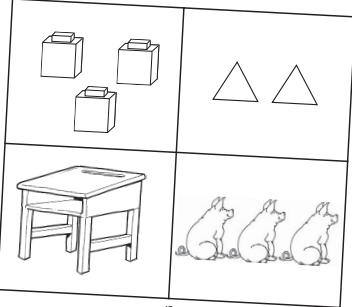
**Activity:** Read the story, then give each student 3 yellow interlocking cubes. Tell them that as you read the story again, you want them to act it out by pretending that the three cubes are the three little ducklings. As you read the story again, stop and count the ducks any time you say, “three little ducks.” Ex. “One fine day, three little ducks wandered away from their mother’s nest.” Also say, **Let’s count them: one, two, three.** Have the student touch and move their ducks as they count. Also reinforce positional words by having the students move their ducks up or down as the ducks in the story go up or down.

Name \_\_\_\_\_

3 bears, 3 chairs



the pictures of 3.



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### 3 Follow-Up Activities

#### A Model of 3

Have students sit in a circle on the floor. Empty a pile of teddy bear counters or interlocking cubes in the center of the group. **Pick up 1 teddy bear in your right hand and place the teddy bear in front of you on your left side. Pick up 1 more teddy bear in your right hand and place it in front of you to the right of the last teddy bear. Pick up 1 more teddy bear in your right hand and place it in front of you to the right of the last teddy bear. How many bears do you have in front of you? (3) How do you know? (I counted the bears.) Show me how to touch and count the bears. One, two, three, three bears.** (circular motion)

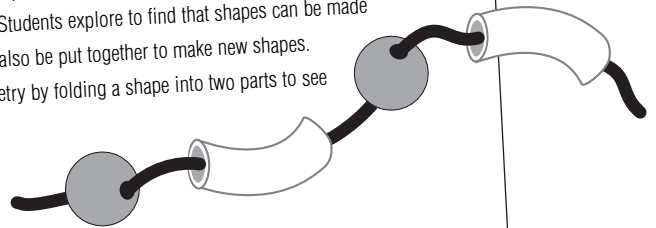
#### Matching Threes

Place cubes under six margarine tubs with the following number of cubes under each tub: 1, 2, 3, 3, 4, 5. Mix up the tubs and arrange them in 2 rows. Children take turns lifting 2 tubs to see if they can find the matching number of cubes. Mix up the order of tubs between turns.

### Overview Unit 4

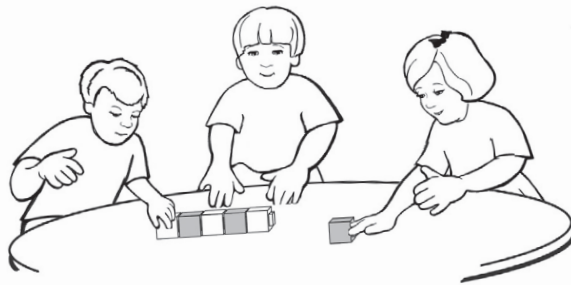
In **Unit 4**, children form perceptions of patterns. In making patterns, they employ the senses of sight, hearing, and touch, and they develop motor skills. They march around the room with drums and other percussion instruments to develop rhythmic musical patterns. Patterns of color are observed in clothing and with manipulatives. Patterns of shape and attributes such as “big, little” are modeled with buttons, attribute blocks, and pattern blocks. Positional patterns describe orientation in space, such as “inside, outside.”

After learning to copy simple alternating A-B patterns, children are asked the more difficult question, “What should come next?” At first, only a few children will be able to follow and predict the next item in a pattern. Increasingly, additional children will join in and be able to do the pattern. Students explore to find that shapes can be made within other shapes, and shapes can also be put together to make new shapes. They identify figures that have symmetry by folding a shape into two parts to see if the parts match.






### Building a pattern

Students learn to copy and build alternating patterns based on attributes of the items, “white, black, white, black.” They are asked to continue the pattern to show what comes next.



### Objectives

-  **PK-4** Identify and extend a pattern using color, people, objects, pictures, and numbers.
-  **PK-7** Order numbers from 0 to 10. Count forward and backward from any number between 1 and 10. Find the number that comes next, before, or between.
-  **PK-15** Identify, compare, and sort plane figures: straight lines, curved lines, circle, square, triangle, rectangle, and oval. Slide, flip, and rotate shapes. Explore how shapes can be made within shapes and put together to form new shapes. Identify figures with symmetry.



Making a repeating pattern

**Objective:** To continue a pattern made with balls and blocks.

**Materials:** Attribute blocks, balls and blocks, large and small marshmallows (optional), beads of the same size but different colors (optional), string, different-shaped hollow macaroni pieces (such as elbow macaroni and rigatoni), cereal of different colors (optional)

**Storytime:**

Ⓔ *Beep Beep, Vroom Vroom*, Murphy, Stuart J.

**Reinforce:** Oral Review PK-5 counting to 5

**1 Introductory Activity**

*Patterns with Attribute Blocks*

**Sample StoryTime Activity**

**Lesson 72**

*E - Beep Beep, Vroom Vroom*, Murphy, Stuart J.

**Summary:** As Molly plays with her big brother's toy cars, readers will see and recognize patterns.

**Activity:** As you read the story have the students tell you the patterns in which the cars are placed. They may use beads and blocks or interlocking cubes to replicate the patterns seen on each page. If you have small cars the same colors as in the story, this makes a great center activity. Have the students place the cars in a pattern and then copy that pattern using crayons onto Master 4-1.



Circle the next bead. (ball with stripe)

Repeat the instructions for each of the other rows.

**3 Follow-Up Activities**

*Patterns with Beads*

If commercial beads of different shapes are available, use the beads to make a necklace following a special pattern. Inexpensive pony beads may be purchased and used.

Name \_\_\_\_\_

Circle the next shape.


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**Macaroni Necklaces**

Give each pair or small group a piece of string and 2 different shapes made from macaroni.

**Sample Art Center Activity**

**Macaroni Necklaces**

Give each pair or small group a piece of string and 2 different shapes made from macaroni. Have 1 child begin making a macaroni necklace following a pattern. Have another child guess the pattern and complete the necklace.

The macaroni may be colored by putting food coloring in rubbing alcohol. Stir the pasta in the alcohol mixture until it is the desired color. Put on newspapers to dry.

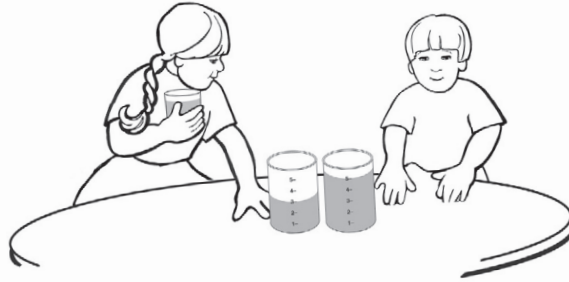
Cereal of different colors may also be used.

### Overview Unit 5






**Unit 5** introduces several **attributes of measurement**—length, height, width, thickness, weight, and capacity. Students visually compare the length or height of several pictures. They measure length using non-standard measurements such as a hand, a foot, paper clips, and cubes. They estimate which might weigh more or weigh less, and become familiar with a balance scale. Also, students visually compare the capacity of various containers to see which might hold more or less. They estimate the duration of events, and the temperature (hot/cold) of objects. They cover a larger shape with smaller shapes to explore the concept of area.

### Learning to measure length, height, weight, capacity, and duration

Students visually compare and order objects by length, height, weight, and capacity. **Which jar has more? How do you know?**



### Objectives

-  **PK-14** Compare and order objects differing in just one attribute: big, little, biggest, smallest, same size; longer, longest; shorter, shortest, same length; taller, tallest, same height; wide, narrow, same width; thick, thin.
-  **PK-18** Identify which activity takes more time or less time.
-  **PK-19** Participate in a discussion about daily schedule.
-  **PK-20** Estimate and measure length and height using arbitrary units. Compare and order objects by length and height.
-  **PK-21** Estimate and compare (informally) the weight and capacity of two objects. Understand concepts of area and temperature.

Using visual comparisons to determine length

**Objective:** To estimate and compare length using visual comparison and direct comparison of objects.

**Materials:** Straws, crayons

**Vocabulary:** longest, shortest

**Storytime:**

Ⓔ *Inch by Inch*, Lionni, Leo

**Reinforce:** Oral Review PK-4 pattern of sizes

## 1 Introductory Activity

### Estimating Length with Body Parts

Review the meaning of the length of body parts that might be useful in measuring how long something is (thumb, small finger or "pinky," palm, hand span, forearm).

Ask students to estimate and compare two of their body parts. **Which is longer, your footprint or your hand span?**

Have students estimate then compare their hand span to the length of their foot.

Repeat with 2 other comparisons. (e.g., a thumb to a little finger, a hand span to a forearm)

### Drawing Straws

Display 3 or more straws of uneven length. Discuss which straw is the shortest and ask students to explain their reasoning. Line up the straws evenly on the left to check the students' guesses.

**If a worm were to crawl from one end of the straw to the other end, on which straw would he have to crawl the shortest distance? The longest?** Put the straws in order from shortest to longest to demonstrate.

**Now let's pretend that we're playing a game and we draw straws to decide who will get the first turn. The person who selects the longest straw gets to go first.**

Hold the straws in your hand so the tops are even and the bottoms are hidden. Have 2 students select a straw. Have the class compare.

## Sample StoryTime Activity

### Lesson 84

*E - Inch by Inch*, Lionni, Leo

**Summary:** To keep from being eaten, an inchworm measures a robin's tail, a flamingo's neck, a toucan's beak, a heron's legs, and a nightingale's song.

**Activity:** Before reading the story, get some green yarn and cut a set of 3 pieces of yarn that are different lengths for each pair of students. After you have read the story, tell the students that some of the inch worm's friends are having a problem. Since they can't find the inchworm to help them, they can't decide which of them is the longest and which of them is the shortest in their group of 3 friends. Pass out a bag of 3 pieces of yarn to each student pair. Have them

Name \_\_\_\_\_

**Shortest to Longest**

r — shortest  
g — longest

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## 2 Connections Activity

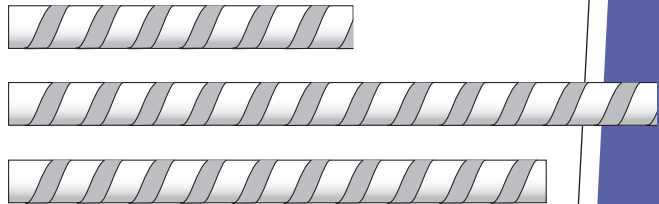
Look at the worm, the snake, and the ant at the top of this page. Which one of these animals is longest? (the snake) Color the snake green. Which one of these animals is shortest? (the ant) Color the ant red.

Let's use green and red again for the next group of pictures. Point to the longest straw and color it green. Point to the shortest straw and color it red.

Continue in the same way for the pencils.

## 3 Follow-Up Activities

*Skill Builders 20-2*

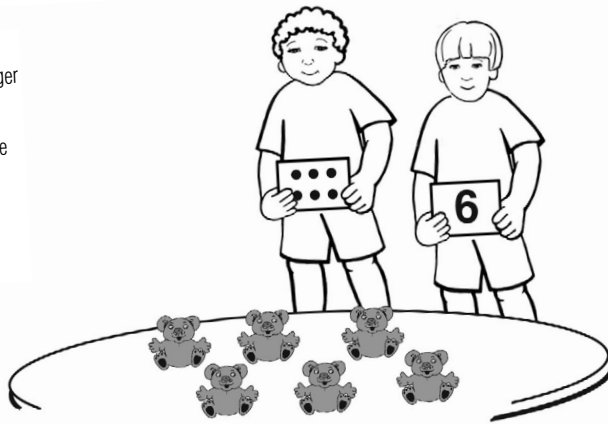


### Overview Unit 6






**Unit 6** extends counting from 0–5 (covered in Unit 3) to include **counting up to 10** and beyond. Students build the numbers 6–12 by adding “1 more” to the previous number counted. They use 6 to 10 bears to fill up a boat with 10 seats to gain a visual model of 10 ones being equivalent to 1 ten, an important skill in our base-10 number system. Students learn to recognize numbers in written form, and match objects to the written numeral. Students learn ordinal positions up to the fifth (5th) place.

### Counting from 6 to 12

Students learn to count the number of objects in sets larger than 5. Students match the objects to a picture and to the written numeral.



### Objectives

-  **PK-5** Count the number in a collection of up to ten objects through active participation. Match sets of 0 to 12 objects with the written numbers.
-  **PK-7** Order numbers from 0 to 10. Count forward and backward from any number between 1 and 10. Find the number that comes next, before or between.
-  **PK-9** Identify ordinal numbers first to fifth.
-  **PK-10** Count aloud to 20, to 31.
-  **PK-11** Read aloud numbers 0–31 written with digits.

## Ordering numbers from 1 to 10

**Objective:** To make models of numbers 1–5. To match pictures of models to the numerals 1–5.

**Materials:** Tagboard cards (4-inch by 5-inch) with the numerals 1 through 5 written on one side, a collection of small objects that can be glued on cards (e.g., buttons, bread tags, stickers, plastic paper clips, bottle caps, cereal pieces), glue, interlocking cubes

**Storytime:**

① *The Cheerios Counting Book*, McGrath, Barbara Barbieri

**Reinforce:** Oral Review PK-4 pattern of solid shapes

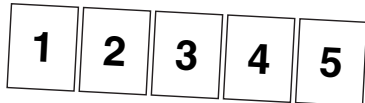
### 1 Introductory Activity

#### Counting Reinforcement

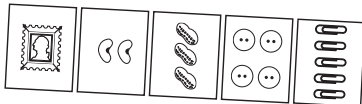
Each student will need a set of tagboard cards with the numbers 1 through 5 written on them, glue, and a selection of small objects to glue on each card. The students will make a set of number cards for the numbers 1 through 5.

First, have the students select the card with the number 1 printed on it. They should turn the card over, and select an object to place on the back of the card, gluing it in place. Continue for the numbers 2, 3, 4, and 5.

Front side



Back side



### 2 Connections Activity

Look at the cards on the left side of the page. What picture do you see in the top card on the left? (2 black dots) **Point and count, 1, 2, 2 dots.** Make a circular motion with your hand.

Now look at the numbers written on the right side of the page. Say the numbers aloud with me as I point to each one. Point to each number and say it out loud. **Where is the number 2 that matches the first picture on the left side? Point to the number 2.** Check that students have correctly identified the 2. Now draw a line from the picture of the 2 dots to the number 2.

Now, look at the next picture on the left side. What do you see? (4 dots) **Where is the number 4 that matches this picture? Point to the number 4.** Now draw a line from the picture of 4 dots to the number 4.

Continue in the same way for each card on the left.

Name \_\_\_\_\_

**Matching**

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### 3 Follow-Up Activities

#### Different Ways To Make 5

Place a pile of interlocking cubes in the middle of each small group of students. **Please select 5 cubes and put them in front of you.** Look for and point out different ways that the students may have arranged the 5 cubes.

Examples:

- 5 close together
- 4 close together and 1 separated
- 3 close together and 2 separated

We can see that 5 objects can be arranged in different ways.

#### Skill Builders 5-4

# Unit 7

## Putting Together

Exploring the results of adding one more to a set

**Objective:** To explore at the concrete level by joining one more to numbers up to 5. To tell the total and write the number in the set.

**Materials:** Teddy bear counters, Reading Rug Storyboard (Unit 7 Master Workmat), interlocking cubes, number stair, frozen dinner trays with 3 sections, Numeral Cards 1–5 (Masters 7 and 8)

**Storytime:**

© *One Gorilla*, Morozumi, Atzuko

**Reinforce:** telling and modeling combining stories (page 121)

### 1 Introductory Activity

**NOTE**

To solve the problem  $3 + 1$ , most children this age will count and think “1, 2, 3, 4.” A few children may be able to count on from 3 by starting with 3 and thinking, “3, 4.” The following activity encourages children to count on from the larger number.

### Making up Problems, Finding the Answer

After you review telling and modeling stories with the Reading Rug Storyboard (Unit 7 Master Workmat), continue the activity, this time having the students say how many bears there are in all. Make up stories involving the joining of one more bear to the reading rug.

An example: **There are 4 bears on the reading rug. One more bear joined them on the rug. Now there are 5 bears on the rug.**

### 2 Connections Activity

To help children visualize a problem as a series of steps that lead to a solution, have them look at this page one picture at a time. Give each child a blank piece of white paper, and instruct them to put it on top of the page in the book and move it so they see only the first picture on the left side of the top row of the page.

**What do you see in this picture?** (3 bears on a reading rug) **Now move your piece of paper to the right until you see the next picture. What do you see here?** (1 bear with a book walking to the rug) **Now move your piece of paper to the right until you see the last picture. What do you see?** (4 bears on a reading rug)

**Tell me a story about what is happening in these pictures.** (First, there are 3 bears on a reading rug. Next, 1 more bear comes to join them. Last, there are 4 bears on the reading rug.) **Find the number cards that tell the story** (3, 1, and 4). **Put the numbers under the pictures at the top of this page.**

Have the children use the blank piece of paper again to

Name \_\_\_\_\_

**One More**

3 1 4

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

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look at the 3 pictures on the bottom of this page one at a time. Be sure to have the children tell the whole story at the end, find the matching number cards, and write and/or put the numbers on the page.

### 3 Follow-Up Activities

#### Stories with Manipulatives

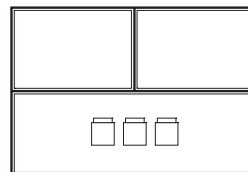
Have students continue to make up their own stories for

#### Sample Follow-Up Activity

#### Stories with Manipulatives

Have students continue to make up their own stories for the rest of the class to model. Be sure to keep a checklist of the children who have had turns so that everyone will get a chance to participate.

Frozen dinner trays partitioned into three sections may be used for showing two parts of a problem and how they join together to form a whole. Children may use counters, cubes, buttons, or small toys to model their stories.



*Skill Builders 26-1*

Exploring the results of taking away two from a set

**Objective:** To explore the concept of taking away at the concrete level by removing 2 from a set of up to 5 objects.

**Materials:** Construction paper (green, blue, and red), scissors, glue, farm animal counters or cards made from Master 18, Numeral Cards 1–5 (Masters 7 and 8), pictures of barns (optional)

**Vocabulary:** horse, cow, pig, duck, sheep

**Storytime:**

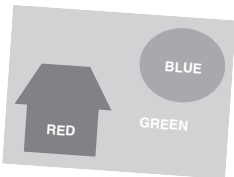
① *Barn Dance*, Martin, Bill Jr. and John Archambault

**Reinforce:** finger play (page 141)

**1 Introductory Activity**

**Creating a Farmyard Storyboard**  
After reading *Barn Dance*, each student will need scissors, glue, and the following shapes cut from the correct color of construction paper to make a storyboard like the illustration below.

Let's make a picture of a farmyard. Let's pretend the green paper is the yard. There is a small pond in the yard. Put the circle of blue paper on your green paper to be the pond. There is also a red barn in the yard. Put the barn shape of red paper on your green paper to be the barn. Show pictures of barns to the students, if available.



Introduce the farm animal counters and allow an exploratory time with the animals. If counters are not available, prepare Farm Animal Cards from Master 18. Identify the animals by name to the students, and ask the students how the animals are alike and how they are different. (Similarities: all animals may be found on a farm, all have 2 eyes and 2 ears. Differences: number of legs, size, shape, feathers or fur, etc.)

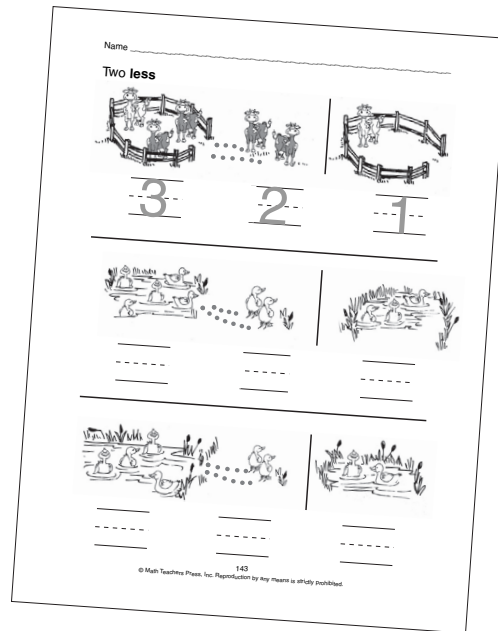
**Telling and Modeling Farmyard Stories**

Tell or read farm stories, asking the students to act out the stories using their farmyard pictures and farm animals. Be sure to tell stories involving taking away. Examples:

Three cows are eating in the farmyard. One cow goes back to the barn. How many cows are in the farmyard?

Three ducks are swimming in the pond. One duck leaves the pond to go to the yard. How many ducks are left in the pond?

Have the students retell each of the stories and model them on the Farmyard Storyboard. After they have retold the story, ask them to find Numeral Cards for the numbers used in the stories.



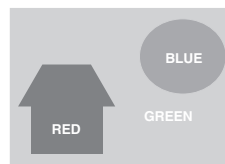
**2 Connections Activity**

Have children use a blank piece of paper to look at this page one picture at a time as described.

**Sample Art Center Activity**

**Creating a Farmyard Storyboard**  
After reading *Barn Dance*, each student will need scissors, glue, and the following shapes cut from the correct color of construction paper to make a storyboard like the illustration below.

Let's make a picture of a farmyard. Let's pretend the green paper is the yard. There is a small pond in the yard. Put the circle of blue paper on your green paper to be the pond. There is also a red barn in the yard. Put the barn shape of red paper on your green paper to be the barn. Show pictures of barns to the students, if available.



## Moving with Math® Connections



**Universal screening** assesses math readiness and identifies at-risk students for differentiated instruction.



**Manipulative based lessons** engage students in the learning process and encourage success through hands-on manipulatives, discussion, and interactive games.



**Develops literacy** by using popular children's stories to introduce and explore important math concepts (**StoryTime** feature).



**Communicates to home** through family letters that keep family tuned into the student's progress in math and suggest fun activities to do together.



**RTI Ready™** to deliver all the intervention strategies recommended by **What Works Clearinghouse**.



**Connections Pre-Kindergarten** continues with **RTI Ready™ Connections Series**:

- ▶ **Connections Kindergarten**
- ▶ **Connections Grade 1**
- ▶ **Connections Grade 2**